TEXTILE TECHNOLOGY DIGEST

VOLUME 11 JUNE, 1954 NUMBER 6

ABSTRACTS

FIBERS A

NATURAL FIBERS A 1

Influence of heavy beating of cotton fibers on molecule length and crystallinity

C. F. Wijnman (Tech. Univ., Delft, Holland). *Tappi 37:* 96-98 (1954). Through *Chem. Abstracts 48:* 6112 (May 25, 1954).

When purified cotton fibers are subjected to heavy beating in a Jokro mill, a marked decrease in the degree of polymerization of the cellulose is observed, together with a moderate reduction in the average size of the crystalline regions and a small reduction in the total crystalline portion. However, when dry cotton is ground to a fine powder most of the crystalline portion is destroyed.

MAN-MADE FIBERS A 2

Glossary of man-made fibers

P. Lennox-Kerr. *Skinner's Silk and Rayon Record 28:* x-xii (June, 1954).

Glossary of man-made fibers giving information on what the fiber is and who is producing, or has produced, it. Early names of fibers are included and confusion between names is clarified.

Japanese super-strength apparel rayon

R. E. Ellsworth. *Modern Textiles Mag. 35:* 31,73,88 (June, 1954).

The development and possible future of the Japanese super-high tenacity rayon fiber Meryl for apparel textile applications is reviewed.

Nylon use-development

British Nylon Spinners Ltd. *Textile Merc. 130:* 326-328 (February 19, 1954).

A useful line of nylon use-development has been the utilization of continuous filament nylon yarn as a support or reinforcement for other yarn structures. In this article, suggestions are given for the use of nylon as a reinforcement for worsted yarn.

Fibers and processing aids

H. Sagar (Imperial Chemical Industries Ltd.). *J. Textile Inst. 45:* P206-P216 (May, 1954).

A general survey of the structure and properties of man-made fibers and the need for and use of chemical processing aids.

Man-made fiber data sheets. Part 4. Zein fibers: Vicara, Zycon

P. A. Koch. *Modern Textiles Mag. 35:* 46-50 (May, 1954).

Data are given on the manufacture, properties, products, applications, patents, etc., of zein fibers. 23 references. These data sheets were originally published in German in *Das Deutsche Textilgewerbe 52:* 177-178 (1950).

Production of fibers from 6,6-, 6,10- and 6-polyamides

G. Meacock (British Nylon Spinners Ltd.). *J. Appl. Chem. 4:* 172-177 (April, 1954).

The differences in physical and chemical properties of 6,6-, 6,10- and 6-polyamides are reflected in the conditions required for the production of the fibers, and in their properties. These factors have been compared. The 6,6-polymer has the highest melting-point and the least thermal stability. On the other hand, 6-polymer produces a fiber containing sufficient monomer to involve process complications, and its initial modulus is low. The 6.10-fibers absorb less moisture than 6,6 or 6. 4 references.

The synthetic fibers Phrilon and Redon

J. Wrieth. *Textil-Rundschau 9:* 83-84 (February, 1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 307 (April 30, 1954).

The properties, chemical behavior, and uses of the two fibers are discussed. Phrilon is, like nylon, a superpolyamide fiber produced from derivatives of ϵ-amino-caproic acid. The derivatives are obtained either from coal tar or from by-products in cellulose processing. Redon (like Orlon) is a crinkly polyacrylonitrile fiber, lighter than wool, but with distinctly woolen characteristics.

Viscose rayon manufacture. Part 2. Methods employed and principles involved

B. R. Desai. *Indian Textile J. 64:* 354-357,360 (March, 1954).

A general survey. 12 references. Part 1 was published in the September, 1952, issue of the *Indian Textile Journal.*

GENERAL A 3

Relation between microstructure of the fiber and sorption phenomena. Part 2. The rate of sorption of water vapor

H. Furuya. *J. Soc. Textile Cellulose Ind. Japan 9, No. 10:* 509-513 (1953); *in Japanese (English summary).* Summary in *Brit. Cotton Ind. Research Assoc. 34:* 362 (May 15, 1954).

Relation between microstructure of the fiber and sorption phenomena. Part 3. The states of sorbed water

H. Furuya. *J. Soc. Textile Cellulose Ind. Japan 9, No. 10:* 514-518 (1953); *in Japanese (English summary).* Summary in *Brit. Cotton Ind. Research Assoc. 34:* 362 (May 15, 1954).

Reversible twist and bending phenomena in keratin fibers

G. King and F. L. Warburton (Wool Industries Research Assoc.). *J. Textile Inst. 45:* T412-T418 (May, 1954).

In giving wool yarns a temporary set it has been observed that, although some tendency to snarl is removed by wetting, a considerably greater effect is obtained during the subsequent drying period. This effect was found to be reversible. The present paper gives an account of the detailed investigation of this property for cow's-tail fibers. Similar tests were carried out on nylon monofil and on rubber. 6 references.

The torsional rigidity of textile fibers

R. Meredith. *Shirley Inst. Mem. 27:* 161-175 (March, 1954).

The initial resistance to twisting, or torsional rigidity, of single fibers from thirty-four samples has been measured by the torsion pendulum method, with period of oscillation from 4 to 9 seconds and twist less than half a turn per cm. Using preliminary experiments on the influence of tension, damping and period of oscillation on the rigidity values as a basis, four sets of inertia bars were designed and used to cover the range of fineness and rigidity commonly met in textile fibers. 20 references.

YARNS B

OPENING AND PICKING B 1

Are innovations in cotton opening processes possible?

D. A. Friedrich. *Z. ges. Textil-Ind. 56, No. 5:* 223-224 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 350 (May 15, 1954).

Recent improvements in bale breakers and openers are briefly reviewed and a modification in the arrangement of the rollers in lap machines is suggested, by means of which it would be possible to feed the lap into the machine without danger to the operative and without the risk of clogging. A sketch of the suggested modification is given.

Dust extractor for rag, flock and jute pulling

Textile Mfr. 80: 230-231 (May, 1954).

In this new arrangement a powerful fan, operated by a 3 h.p. motor, efficiently extracts air, dust and dirt through an open wire-work conveyor into a duct equipped with vanes to ensure the even distribution of suction over the full width of the conveyor.

Effects of room climate and general atmospheric conditions on the properties and combing of viscose fibers

G. Nitschke. *Textil- u. Faserstofftech. 4, No. 2:* 73-79 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 350 (May 15, 1954).

Experiments, carried out to ascertain to what extent atmospheric influences are reflected in the distribution of neps in combed staple fibers, have shown that the relative air humidity affects the moisture content of the fiber and indirectly the nep formation during combing, the number of neps increasing with increasing relative humidity. A sudden increase or drop in room humidity in the course of a working day causes corresponding changes in nep formation. Certain atmospheric influences, particularly sudden changes in weather, also appear to be responsible for the nep formation, but the causes of this effect are not yet sufficiently elucidated and require further investigation.

Jet cleaners improve opening

T. B. Winston. *Textile World 104:* 109,180-182 (June, 1954).

Four improvements that Danville Yarn Mills is getting with jet cleaners in its opening line are: (1) blows per inch are reduced from 50 to 9, (2) good cotton is not removed, (3) down-the-line processing is improved, and (4) the jet cleaners require little maintenance.

Motion for reversing pipings in pneumatic conveyor systems

K. Zuleger. *Textil-Praxis (English ed.) No. 1:* 13-15 (March, 1954).

A patented pipe switch designed to replace old reversing boxes is described. No mixing of

fiber lots and great reductions in turbulence of air currents in the air lines are advantages claimed for this switch.

CARDING AND COMBING B 2

Inspection forms for card-room maintenance

E. H. Helliwell. *Textile World 104:* 124-125, 198 (June, 1954).

Two forms are illustrated. The first records inspection results by machine-part groups. The other lists faults and failures to guide maintenance work.

The mounting of saw-toothed wire clothing

Z. ges. Textil-Ind. 56, No. 4: 183-185 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 350 (May 15, 1954).

Preparation of the rollers, adjustment of the mounting direction, fixing and welding of wire ends, grinding and polishing of the rollers, and repairs to damaged rollers, are discussed.

Use of flat cards for staple fibers

Z. ges. Textil-Ind. 56, No. 5: 224-225 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 350 (May 15, 1954).

Recommendations are given as to the speed of the taker-in and optimum conditions in the card for obtaining from the treated staple fibers a uniform card fleece without "clouds" or holes.

Wool mill men discuss carding and spinning

Textile Ind. 118: 106-109 (June, 1954).

Highlights from the carding and spinning sections of the third annual supervisor's seminar, sponsored by the National Association of Wool Manufacturers, are given.

DRAWING AND ROVING B 3

Effect of machine passages on the regularity of yarns

E. Simon. *Textil- u. Faserstofftech. 4, No. 2:* 80-91 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 352 (May 15, 1954).

The experiments described and illustrated by diagrams show that (a) uniform card slivers have a considerable effect on the number of drafting passages required; (b) spinning of carded slivers requires two passages and that of combed slivers 2-3 passages; (c) the effect of combing frames on the regularity of short slivers is negative, and (d) all the speed frames have a negative effect on yarn regularity, as seen clearly from the Uster diagrams. The recently installed spinning mill in Western Germany uses draw-frame slivers for ring-spinning machines, eliminating all speed frames.

Studies on random slivers. Part 1

H. Uchida, K. Mihira and Y. Ikeuchi. *J. Soc. Textile Cellulose Ind. Japan 9, No. 10:* 500-504 (1953); *in Japanese (English summary).* Through *Brit. Cotton Ind. Research Assoc. 34:* 351 (May 15, 1954).

Fiber distribution in random slivers was studied by using a "draft cut type" model, and it was found that it can be expressed by the formula: the $f_1=2/G^{2}\cdot\{pG-(p-q)^{1}\}$, where draft cut probabilities are expressed by p for the filament that has been cut once or more, and q for the primary filament in the draft cut region G. The same equation can be applied to the "roulette" sliver. For determining the distribution of row and tuft fibers in random slivers, however, a different method was used.

Constant or adjustable main draft field on the draw frame of the cotton ring spinning machine

K. Quaas (Zellwolle-Lehrspinnerei, Denkendorf, Germany). *Textil-Praxis (English ed.) No. 1:* 8-12 (March, 1954).

A long tape cage, special model L, used on the ZL two tape drawing system allows the use of a constant ratch in the main drawing field for 1.6 and 2.4 inch staple fibers and 1.6 inch Perlon. To change from one staple range to the next, the long tape cage is simply flipped up or down. No drop in quality of yarns is noted on using this system. Several tables indicating quality of yarns produced are given. The Casablancas popular model U cage can be used on the ZL system for the exclusive spinning of 1.6 inch fibers, including cotton.

Draft-cutting mechanism. Part 3. Fiber length distribution

S. Ishikawa and M. Tabata. *J. Soc. Textile Cellulose Ind. Japan 9, No. 9:* 457-462 (1953); *in Japanese (English summary).* Through *Brit. Cotton Ind. Research Assoc. 34:* 351 (May 15, 1954).

Equations are given in the original paper for calculating the breaking length, probability curve, fiber-length distribution, and mean fiber length. The fiber-length distribution of the yarn spun on the tow-to-sliver or -yarn system decreases with increasing drafting ratio and inter-filament cohesion. The mean fiber length can be increased by decreasing the drafting ratio and filament co-

hesion and by using materials with large breaking elongation before and after draft-cutting.

Grinding and measuring top rollers

W. Stahlecker. *Textil-Praxis (English ed.) No. 1:* 1-3 (March, 1954).

A device for grinding plastic and similar composition top rolls on drawing frames and a gauge for measuring roll eccentricity are described. In using either device, top rolls are removed from the production machinery and mounted in the device. Rolls giving deflections more than 0.002 inch are reground.

Some observations on the drafting forces of cotton and rayon-staple slivers

B. Cavaney and G. A. R. Foster (Brit. Cotton Ind. Research Assoc.). *J. Textile Inst. 45:* T390-T404 (May, 1954).

Previously published in *Shirley Institute Memoirs 27:* 37-51 (February, 1954). See *TTD 11:* 142 (April, 1954).

Two-zone drawing frame for flyers

Spintex GmbH, Germany. *Textil-Praxis (English ed.) No. 1:* 3 (March, 1954).

The frame has four individually loaded top rolls. The pre-drawing field has a ratch of 1.3 to 3 inches and drafts of 2.5 to 3. The main drawing field has a ratch of 1 to 2.6 inches and drafts of 3.4 to 4.

SPINNING, WINDING, TWISTING B 4

The magnitude of friction between the traveler and the ring

W. M. Lasarenko. *Tekstil. Prom. No. 7:* 25-28 (1953); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 34:* 351 (May 15, 1954).

Experiments carried out with automatically-oiled, hand-oiled, and dry rings, respectively, showed that the friction of the traveler changes during the whole winding process as well as during the movement of the ring rail, and is greatest in dry and least in automatically-oiled rings. In all cases, however, the friction increases with increasing diameter of the yarn balloon. The working conditions of the traveler are impaired by a large balloon diameter. The slight decrease of friction during one ring-rail movement, particularly noticeable when the ring-rail reaches the upper position, depends upon the pressure of the traveler on the ring, resulting from the change in balloon shape and width. The relationship between this pressure and the friction of the traveler is shown by means of a parallelogram of forces and by equations. The yarn tension during winding is mainly affected by the increase of balloon diameter and the friction of the traveler, the energy expenditure for the rotating bobbin axis being directly proportional to the corresponding frictional forces of the traveler at varying balloon diameters.

Pinpoint bad spinning

J. Wheeler (Canton Cotton Mills). *Textile Ind. 118:* 110-113 (June, 1954).

Controlling the uniformity of yarn by making various tests with an electronic uniformity analyzer and utilizing this information in correcting irregularities in the production machinery. 12 photographs show causes of defective spinning in order of frequency.

Twist tables

H. L. Pratt. *Textile Ind. 118:* 138-141 (June, 1954).

Twist tables were made up for use in the twister room. Their use in actual practice is explained.

GENERAL B 5

Irrigated cotton

E. Hard. *Textile Ind. 118:* 130-133 (June, 1954).

Mill problems with irrigated cottons are discussed and a number of specific suggestions are given for successful processing.

Nylon staple fiber: processing

British Nylon Spinners Ltd. *Textile Merc. 130:* 143-147,155; 188-189,194; 237-238; 276-277; 463-464,474 (1954).

The information in these articles is taken from the *Technical Service Manual* of the British Nylon Spinners Ltd. and includes spinning nylon on the cotton, woolen, and worsted systems, twist setting, and carbonizing processes.

Spinning of viscose and cotton blends

J. Atkins (Dominion Textile Co. Ltd.). *Can. Textile J. 71:* 55-59 (June 4, 1954).

The author points out essential differences in the physical properties of the two materials involved and enumerates various processes through carding, drawing, blending, and spinning. The percentage fiber content and cleaning schedules are discussed in detail.

Determination of distribution of elongation by stretching of the yarn

K. Shirakashi and M. Yamaguchi. *J. Soc. Tex-*

tile Cellulose Ind. Japan 9, No. 10: 506-509 (1953); *in Japanese (English summary).* Through *Brit. Cotton Ind. Research Assoc. 34:* 366 (May 15, 1954).

Yarn elongation was recorded by the SY regularity tester to show the correlation between yarn elongation and thickness, the relationship between partial and total elongation, and the change in the number of fibers in the stretched yarn.

Elastic Enkalon yarns

P. C. van Hoek. *Enka Breda Rayon Revue 8:* 6-10 (April, 1954); *in Dutch.*

A survey is given of the manufacture, the properties and the applications of high-elastic Enkalon yarns. The special character of the yarns is based on the setting of a high twist followed by untwisting, in which way a voluminous, crimped yarn is obtained. Some preliminary data concerning the processing are mentioned as well.

Elongation and elasticity of Perlon yarn as a function of time and stress

W. Wegener. *Rayonne et Fibres Synthet. 10, No. 2:* 7-16 (1954); *in French; Reyon Zellwolle u. Chemiefasern No. 2:* 69-71 (1954); *in German.* Summary in *Brit. Cotton Ind. Research Assoc. 34:* 366 (May 15, 1954).

Properties of glass yarns prepared with various emulsions

P. R. Masek. *Melliand Textilber. 35:* 226-228 (March, 1954); *in German.* English summary in *Brit. Rayon and Silk J. 30:* 70 (May, 1954).

Studies on the construction of fabrics and their manufacturing process. Part 3. Effect of twist on yarn quality. Part 4. Factors for the weaving threads

H. Matsuda. *J. Soc. Textile Cellulose Ind. Japan 9, No. 8:* 405-417; 417-421 (1953); *in Japanese (English summary).* Through *Brit. Cotton Ind. Research Assoc. 34:* 368 (May 15, 1954).

Part 3. The effect of the degree of twist on strength, elongation and elasticity of yarn is discussed, and the fabrics are classified accordingly. Part 4. Effects of color, luster, hygroscopicity, elasticity, hardness, flexibility, diameter, regularity, twist, strength, and elongation of yarn on the structure and properties of fabrics are described.

A new elastic yarn

R. Dumiez. *Industrie Textile:* 30-32 (January, 1954); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 314 (April 30, 1954).

The process described consists in encasing a twisted rubber nucleus by means of a fine fiber strand which is strong and resistant to wear, and consists of one or more continuous filaments of polyamide, polyester, polyacrylic (and copolymers), polyvinyl chloride, or regenerated cellulose fibers. The apparatus for producing the reinforced elastic yarn is described and illustrated.

Orlon thread for the canvas products industry

H. P. Zettwoch. *Nat. Canvas Goods Mfrs Rev. 24:* 28-29,50-52 (May, 1954).

The advantages of Orlon thread for canvas products are enumerated and specific directions are given for its use.

FABRICS C

WARPING, SLASHING, YARN PREPARATION C 1

Evaluating warp size in the lab

P. Seydel (Seydel-Woolley and Co.). *Textile Ind. 118:* 126-129 (June, 1954).

An English summary of a Belgian research report which appeared in *Annales Scientifiques Textiles Belges.* 15 references.

Modern size preparation in rayon warp sizing

G. Mirtschin. *Textil-Praxis (English ed.) No. 1:* 19-22 (March, 1954).

The importance of care and proper equipment in preparing rayon size is emphasized. A typical modern size preparation system is described.

Practical hints on sizing

R. Gunther. *Z. ges. Textil-Ind. 56, No. 5:* 233-234 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 353 (May 15, 1954).

Methods for testing the suitability of a product for use as sizing agent (color, odor, dry weight, keeping quality, turbidity and cloudiness after drying, adhesive power, viscosity and solubility) are briefly outlined and three types of viscometers (simple flow viscometer, a bulb and a Beaumé hydrometer) are described.

Size-making equipment

E. D. White. *Textile World 104:* 120-121,200 (June, 1954).

New type equipment is described for making

slasher size. It begins with a cold-slurry mixing tank and continues with automatic operation to the slasher storage kettles.

The warping machine and its relation to the sizing machine

J. Schneider. *Rayonne et Fibres Synthet. 10, No. 2:* 17-26 (1954); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 353 (May 15, 1954).

The modern sizing machines are provided with an improved control mechanism for varying the speed of the warp yarn according to its tension and moisture content. Various driving devices are discussed and illustrated, and a tension regulator is described, in which the warp passes between two rollers and then under a roller subjected to the pressure of a spring. This roller can be vertically displaced when the tension changes, the displacement being proportional to the pressure of the spring. Any changes in tension can thus be read off a scale and adjustments immediately made, if necessary.

The case for rewound filling

Textile Age 18: 24-25 (June, 1954).

The advantages outweigh the disadvantages in this discussion of large package spun rewound filling.

On the properties of yarn tensioners. Part 2

J. A. Kalkman. *Enka Breda Rayon Rev. 8:* 54-77 (May, 1954); *in Dutch.*

After a summary of the first article on this subject, the results are given of measurements of minimum and maximum tensions which occur when low-twisted rayon, crepe rayon and Enkalon yarns are warped at different speeds. 41 different yarn tensioners were examined. A universal tension formula is given from which the occurrence of "sensitivity to speed" and "unsteadiness" is explained. The results are discussed per tension principle. Special attention is paid to the warping of crepe yarns. 3 references.

WEAVING C 2

Aligning X-2 loom lays

R. B. Pressley. *Textile World 104:* 110-111, 180 (June, 1954).

Lays out of alignment cause excessive second-quality cloth and low weave-room efficiency. A correct lay-aligning job will correct these faulty conditions, and in addition shuttle life will be increased, warp and filling breaks will decrease, loom-parts costs will be lower, and looms will run better.

Can further progress be expected in conventional loom-constructions?

A. J. Gasser. *Textil-Praxis (English ed.) No. 1:* 22-27 (March, 1954).

Developments in conventional looms are discussed. These improvements are used to illustrate the author's belief that much more progress can be expected in conventional loom construction.

Cop holding device on shuttles for automatic looms

F. Bruning. *Textil-Praxis (English ed.) No. 1:* 28-30 (March, 1954).

Horsehair bristles on cop-holding shuttles are replaced with synthetic bristles having a wear life equal to that of the shuttle. These shuttles are used in jute, linen, and scouring-cloth weaving.

Instantaneous action of the swell to fix the position of the shuttle in the shuttle box

M. Bourliere. *Industrie Textile:* 39-40 (January, 1954); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 319 (April 30, 1954).

The mechanism described consists of a releasing device which, normally, holds the swell or break shoe without pressure, so that the shuttle can freely move into the box, but is actuated directly by the shuttle when it attains a predetermined position in the box. The tension cover then presses on to the shuttle and fixes it always in the same position in the box, thus ensuring a regular slay and, indirectly, facilitating the changing of cops and the functioning of other auxiliary mechanisms.

The photo-electric cell for use in warp stop motions

G. Munier. *Industrie Textile:* 37-38 (January, 1954); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 319 (April 30, 1954).

The apparatus described is based on the sensitivity of photo-electric cells to differences in light intensity, and consists of a photo-electric cell, a light stimulus, a reciprocating mechanical driving system, an electronic amplifier, and a relay causing the machine to stop at the time required. (Mechanism of the device in controlling the shuttle is outlined and illustrated).

Saurer weaving machinery

Adolphe Saurer, S.A. Switzerland. *Textile Merc. 130:* 726-727 (April 23, 1954).

Several Swiss looms are briefly described.

Design of shuttle swells. Part 1

H. Barlow. *Textile Recorder 72:* 87-89 (June, 1954).

The article discusses some of the many types of swell designed for checking the shuttle after picking.

Shuttle propulsion. Part 3

A. T. C. Robinson. *Skinner's Silk and Rayon Record 28:* 610-612 (June, 1954).

The author considers the mechanics of shuttle propulsion and deals with uniform shuttle acceleration and shuttle checking.

Recent development of temples

W. Ernst. *Textil- u. Faserstofftech. 4, No. 2:* 116-119 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 354 (May 15, 1954).

The importance of this loom component and disadvantages of the normal, differential and special cylinders are discussed, and two new constructions are described and illustrated. The necessity of standardizing the construction of temples is pointed out.

Temples and fittings

W. Middlebrook. *Textile Mfr. 80:* 251-253 (May, 1954).

The function and types of temples in use including the trough and roller arrangement, bar temples, star temples, ring and roller temples.

Spring dyamometer for determining the power consumption per loom

L. L. Tiz. *Tekstil. Prom. No. 7:* 40-41 (1953); *in Russian.* Summary in *Brit. Cotton Ind. Research Assoc. 34:* 354 (May 15, 1954).

KNITTING C 3

Control of knitting faults

J. B. Lancashire. *Textile Recorder 72:* 80-83 (June, 1954).

Some causes of defects in knitted fabrics and their avoidance by accurate setting and the careful control of knitting operation.

Designing on the interlock knitting machine

E. Heukers. *Enka Breda Rayon Rev. 8:* 85-88 (May, 1954); *in Dutch.*

Interlock fabrics often have a smooth appearance. In this article a description is given of two possibilities for giving interlock fabrics more character by means of pattern effects. Three mounted fabric samples.

Fine gauge F/F nylon hose

Deutsche Cottonmaschinenfabrik GmbH. *Textile Merc. 130:* 860-861 (May 14, 1954).

Features of the redesigned Kalio model machine for the manufacture of fine gauge nylon hose are briefly described.

Fully automatic double cam boxes flat knitting machine

H. Stoll and Co., Reutlingen, Wurttemburg, Germany. *Textil-Praxis (English ed.) No. 1:* 42-43 (March, 1954).

"Dofuma" fully automatic knitting machine can give all the basic types of knitting, changeover of each type of stitch to 2 + 2 ribbing at any point in fabric, and automatic change from double system knitting to one-sided smooth fabric. No jacquard cards are used on this machine.

High-speed eyelet knitting on revolving cylinder machines

Mellor Bromley and Co. Ltd. *Textile Mfr. 80:* 246-247 (May, 1954).

Distinctive features of two new latch needle circular machines recently introduced to make plain and figured eyelet fabrics for the cut goods trade from various kinds and counts of yarn.

Higher tricot quality at lower costs

C. A. Pembroke. *Textile Age 18:* 42-46 (June, 1954).

A new labor-saving stop-motion device, originated by the Celanese Corporation, is claimed to provide higher knitting quality at a substantial reduction in costs in the production of superior fabrics. Basically, the device is an attachment for tricot knitting machines for the purpose of stopping the action whenever there is a defect in the cloth produced. It employs an electric eye to patrol or scan the fabric constantly, looking for defects in the fabric an inch beyond the knitting needles. When the defect is found, the machine is instantly automatically stopped so that the defect cannot grow longer, and a signal calls for attention.

Knitting full-fashioned sweater parts

J. B. Lancashire. *Textile World 104:* 122-123 (June, 1954).

Directions and diagrams are given.

Lubricating oils in the hosiery and knitwear trade

G. V. Carrette. *Textile Merc. 130:* 873-876 (May 14, 1954).

Properties required in an oil, basic raw materials, lubrication of fibers in the hosiery trade, and machine lubrication are discussed.

Principles of weft knitting. Part 13. Fully-fashioned hose manufacture

S. B. Bradley. *Brit. Rayon and Silk J. 30:* 53-55 (May, 1954).

The "complete" method of knitting full fashioned hose with the French foot is described.

Tricot stop motion

J. H. Blore. *Textile World 104:* 128-129 (June, 1954).

A photoelectric stop motion developed by Celanese Corporation scans tricot fabric on the machine at approximately 2-inch intervals. Faults caused by broken threads and faulty needles cause the machine to stop. Operators can now attend six 168-inch machines, but new developments may raise assignments to 8 to 12 machines.

GENERAL C 4

Braiding technology. Part 4. Solid cord, high speed and Fraser braiders

D. Brunnschweiler. *Skinner's Silk and Rayon Record 28:* 592-594 (June, 1954).

Cloth setting reconsidered. Part 8

S. Brierley. *Textile Mfr. 80:* 248-250 (May, 1954).

In double cloth structures particular attention should be paid to two important factors (1) the structures of both face and backing cloths and (2) the method and frequency of stitching.

Construction of fabrics and their manufacturing process. Part 5. Fabric structure and weft density

H. Matsuda. *J. Soc. Textile Cellulose Ind. Japan 9, No. 9:* 462-465 (1953); *in Japanese (English summary).* Through *Brit. Cotton Ind. Research Assoc. 34:* 368 (May 15, 1954).

The weft density under natural warp- and weft-yarn conditions, and the relation between the intersection angle, density of weft, and diameter of warp and weft are discussed.

Design in woven fabrics. Part 18. Drafted diagonals

D. C. Snowden. *Wool Rev. 27:* 47,49 (May, 1954).

This article discusses a method of producing fancy diagonals that will draft on a reasonably small number of heald shafts.

Fancy coating tweeds

Wool Record 85: 1154-1155 (May 20, 1954).

Design particulars are given for some double cloths.

Further studies in textile design. Part 6. Bedford cords

Textile Recorder 72: 78-79 (June, 1954).

Moss crepe weaves

T. Raspe. *Enka Breda Rayon Revue 8:* 33-40 (April, 1954); *in Dutch.*

A large number of weaves are discussed in this article, which is illustrated by 15 compositions of fabrics.

Nylon in socks

British Nylon Spinners. *Brit. Rayon and Silk J. 30:* 47 (May, 1954).

The relative merits of different constructions and blends are briefly discussed.

Practical selvages

J. Weber. *Textil-Praxis (English ed.) No. 1:* 30-31 (March, 1954).

Selvages of rayon fabrics that are to be piece-dyed are considered. Eighteen designs illustrate practical selvages.

Short-cut methods to check new cloth patterns

E. Waller (Dan River Mills, Inc.). *Textile World 104:* 126-127, 182-186 (June, 1954).

Looms with new warps get back in production quickly because employees in the designing department use short-cut methods to check head ends from the looms. The methods include a checklist to eliminate errors, counting picks in multiples, a formula for cloth contraction, and control of slack and tight selvages.

Textile scaffolding threads. Part 29. The functions of the removable carrier thread

A. Johnson. *Skinner's Silk and Rayon Record 28:* 614-615 (June, 1954).

Soluble yarns to retard felting in wool, production of fringes, production of pile, and spacer threads used in knitting are considered.

FINISHES D

WET PROCESSES D 1

Chemical finishing techniques. Part 4

A. C. Nuessle (Rohm and Haas Co.). *Textile World 104:* 132-133, 190-198 (June, 1954).

A fabric can be finished to decrease its natural tendency under certain conditions to fade,

develop static electricity, pill, burn, or rot. In this article, the author discusses the nature and prevention of these harmful effects.

Adams oscillating unit may alter piece dye methods

L. Sherman Adams Engineering, Inc. *Am. Textile Reptr. 68:* 17,19 (June 10, 1954).

A machine which performs scouring, fulling, washing, and wet or dry napping is described. It will be manufactured by Proctor and Schwartz for lease or sale.

The fixing of polyamides at various stages of processing

G. Fruh. *Rayonne et Fibres Synthet. 10, No. 2:* 57-63 (1954); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 360 (May 15, 1954).

The problem of whether articles from already shrunk polyamide fibers should be fixed again induced the author to study in general the fixing of nylon and Perlon at various stages of processing. The study comprises the following points: definition, purpose and methods of fixing; when and at which stage of manufacture should it be carried out; fixing of stockings, open fabrics and cloths; temperature control; introduction of saturated steam; washing the materials before and after fixing, and boiling in continuous washing machines.

Removing antistatic agents from Perlon fibers (type B)

W. Ernst. *Z. ges. Textil-Ind. 56, No. 5:* 243-244 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 356 (May 15, 1954).

The antistatic preparation applied to Perlon fibers to be processed on ordinary flat cotton cards, usually contains synthetic tanning agents and swelling agents, such as phenol, polyglycol derivatives, etc. It was found that, apart from the difficulties encountered in dyeing the fibers treated with these agents, the B-type Perlon fibers exhibit a persistent, strongly acid odor and yellow on exposure to light. Various compositions and treatments for completely removing these disadvantages are recommended, and an optical brightening agent is reported to be soon available, which will be stable to light and capable of counteracting the yellowing effect.

Chlorination of wool at long liquor ratios

C. Earland and D. J. Raven (Bradford Technical College). *J. Soc. Dyers Colourists 70:* 185-187 (May, 1954).

It is shown that the effectiveness of chlorine in acid solution as an anti-felting agent for wool is independent of the liquor:wool ratio up to 100,000:1. It is considered that this is further evidence for concluding that the reaction between wool and chloramines is not a simple chlorination. 8 references.

Effect of temperature in the scouring of merino wool on subsequent processes

P. P. Townend (University of Leeds). *Wool Rev. 27:* 39-43 (May, 1954).

Experimental data are given.

Fluorescent whitening agents containing a triazine nucleus

B. C. M. Dorset. *Textile Mfr. 80:* 254-258 (May, 1954).

The requirements for satisfactory fluorescent whitening agents are discussed and the chemical structures and properties of a number of agents of the stilbene type with the addition of triazine groups are described. Patent references.

Knit-goods bleaching range

B. K. Easton (Buffalo Electro-Chemical Co. Inc.). *Textile World 104:* 112-114,190 (June, 1954).

Designed for tension-free bleaching of knit goods to insure minimum shrinkage after laundering, the continuous range also produces a soft hand and a consistently uniform white finish. The range described processes 140,000 lbs. weekly.

How to trap lost profits in mercerizing. Part 3

D. V. Guillemette. *Textile Age 18:* 66-69 (June, 1954).

Mercerizing machinery is discussed. Diagrams and photographs.

Mercerization in acid-treated jute fiber

S. M. Mukherjee (Indian Jute Mills Research Assoc. Institute). *J. Textile Inst. 45:* T405-T411 (May, 1954).

The object of this investigation was to study the process of mercerization in jute pretreated with progressively increasing concentrations of sulfuric acid and also to examine the hydrate transformation in jute and ramie when washed after being treated in nitric acid of the concentration known to produce the Knecht compound (addition compound between cellulose and nitric acid). 12 references.

Crease-resist finishes for cotton and linen fabrics. Part 3

Textile Recorder 72: 84-86 (June, 1954).

Processes which involve chemical combination with the fiber or otherwise preserve the strength, flexibility and wear resistance of the original fabric.

Crease-resist finishing of rayon staple fabrics

H. W. Best-Gordon (Courtaulds Ltd.). *Dyer 111:* 825,827 (May 28, 1954).

A brief general discussion of the problems encountered in good quality crease-resist finishing for rayon staple fabrics.

Flameproofing with THPC resins

W. A. Reeves and J. D. Guthrie (Southern Regional Research Laboratory). *Textile Wkly. 53:* 1618-1622,1640 (May 28, 1954).

Non-durable antistatic agents

DuPont Tech. Bull. 10: 4-6 (March, 1954).

Zelec NE and Zelec NK are non-durable antistatic agents designed for use on all types of textile fibers that develop static charges during processing. They are companion products, similar chemically and equal in antistatic effectiveness. The choice between the two is based on application conditions and performance requirements in each particular case. Zelec NE is especially recommended for use in water systems while Zelec NK is more compatible in solvent systems. Properties and uses are described.

Piece scouring

G. Rordorf. *Z. ges. Textil-Ind. 56, No. 3:* 141-143 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 273 (April 15, 1954).

The essential points for a rational piece-scouring process are: the mixing proportion of the batch, the nature and amount of the foreign constituents to be removed (particularly lubricants), the water conditions, and special finishing effects to be obtained. The scouring agents must be chosen accordingly, taking into account also dependence upon pH, temperature and concentration, and their rinseability, and compatibility with alkali cellulose derivatives, etc.

Scouring agents in the textile industry and their most important properties

M. Rosch. *Melliand Textilber. 34:* 567-569 (1953). Through *Chem. Abstracts 48:* 5506 (May 10, 1954).

Measurements of surface tension, wetting-out effect, and frothing power are not always an indication of the cleansing power of a detergent as shown by tests with four detergents on a wool fabric and a cotton fabric. The order of scouring efficiency was for wool the inverse to, for cotton the same as, that of their wetting-out and frothing power. The effect of temperature and of mixing detergents is also discussed and it is concluded that there is no advantage in mixing anionic with nonionic detergents since the mixtures generally do not give as good results as either component alone.

Wool scouring: effects of alkalis, detergents and oils

Wool Record 85: 919-920 (April 22, 1954); 982-985 (April 29, 1954); 1040-1042 (May 6, 1954).

DYEING AND PRINTING D 2

Acrylic fiber dyeing problems

Skinner's Silk and Rayon Record 28: 617-618 (June, 1954).

A general survey with 3 references.

Anthraquinone vat dyes

K. J. Bradley and P. Kronowitt. *Ind. Eng. Chem. 46:* 1146-1156 (June, 1954).

More than 35 different dyestuffs are in the list that can be produced at Ciba's Toms River, N. J., plant. Besides the dyes themselves, many intermediates are made and stocked. Cibanone Brown BR, the particular dyestuff whose manufacture is described in detail in this article, is a carbozole derivative of anthraquinone. 30 references.

The aggregation tendencies of acid wool dyes in saline solutions

K. N. Davies and J. Whetstone (Imperial Chemical Industries). *J. Chem. Soc.* 865-866 (1954). Through *Chem. Abstracts 48:* 6128 (May 25, 1954).

The salting-out from aqueous solution of acid dyes by NH_4NO_3 is discussed. The salting-out tendency is not related essentially to the proportion of solubilizing groups in the dye molecule, and various classes of dyes behave differently.

Aniline black in printing

A. G. Barinova and K. V. Komlev. *Tekstil. Prom. 10, No. 1:* 33-34 (1950); *in Russian.* Through *Chem. Abstracts 48:* 6129 (May 25, 1954).

With p-$NH_2C_6H_4NH_2$ as catalyst instead of ferrocyanides, dyeing with aniline black became satisfactory and the printing paste stable. To decrease the acidity of the paste and subsequent weakening of the fiber, organic acid (lactic or acetic) and $Zn(OH)_2$ were added to the dye bath.

Brightening of textiles with fluorescent compounds

A. Landolt (Ciba Ltd.). *SVF Fachorgan Textilveredlung 8:* 299-302, 338-345 (1953); *in German.* Through *Chem. Abstracts 48:* 6129 (May 25, 1954).

Bleached fibers are not always purely white. For many years the yellow component was compensated for by bluing. The brightening method with fluorescent compounds is based on a physical principle. Incident light is absorbed and re-emitted in a longer wave length, and therefore ultraviolet light is transformed to the visible part of the spectrum. Thus, the material emits more visible light than untreated fabrics would reflect. The brightening effect depends on the percentage of ultraviolet light of the light source. Examples: fluorescin, eosine, rhodamine, and many colorless compounds. They are applied like dyes, 0.5-5 g./l. bath. Almost any shade can be produced. Comparison of the fluorescent effect on fibers is difficult because of undefined light sources; in addition the judgment is influenced by the color. A standard method for examination of specifically treated fibers is given, and the curves of 12 different fluorescent compounds, also with the influence of other present chemicals, are shown in diagrams. 31 references.

Continuous dyeing of indigosols

C. T. Speiser (Durand-Huguenin, Basel, Switz.). *SVF Fachorgan Textilveredlung 8:* 267-283 (1953); *in German.* Through *Chem. Abstracts 48:* 6129 (May 25, 1954).

Alkaline padding solutions are more stable, and they dye more uniformly because of decreased affinity. The fabric must be absorbent, dry, free of calcium salts, and of uniform temperature. Most foulards are usable. The number of rollers is unimportant as long as they are in perfect shape. A high squeeze effect is not necessary. Small dyebaths are preferable. Equal squeezing from both sides of the material close to the dye liquor prevents migration of small dye molecules. To get the same shades on both sides of the fabric, it should not be rolled up right after leaving the developing bath. The padding solution must have uniform temperature unless it is below normal (30-40°). Slop padding is recommended. The developing time should be variable for different dyes. Darker shades can be achieved by padding twice at 60° or with intermediate drying. Extensive investigations on soaping led to the conclusion that the soaping time depended on the particular indigosol. Less time is needed for anthraquinone indigosols. Vat dyes are compared with indigosols. The Vat Craft process which dyes with sensitizing agents is also discussed.

Dyeing of polyamide fibers with dispersion dyes

C. Blau. *Z. ges. Textil-Ind. 56, No. 4:* 194-195 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 358 (May 15, 1954).

Dispersion (acetate) dyes, consisting mainly of amino compounds or water-insoluble azo dyes, show on polyamide fibers excellent levelling power and brightness that cannot be obtained with other dye-stuffs. They are able to cover stripes in the material and, provided that the dye-bath temperature and the properties of the individual products are taken into account and suitable dispersing agents are used in sufficient quantity, they can be successfully used for dyeing polyamide fibers in the form of yarn and woven and knitted fabrics. A suitable dyeing method is described and recommendations are made to ensure optimum results.

Dyeing of yarn by the cheese package principle

T. Clarke. *Textile J. Australia 29:* 244-250 (April 20, 1954).

Interaction of aniline black and cellulose

F. I. Sabow. *Sovetska Veda, Chemie No. 3:* 479 (1953); *in Czech.* Summary in *Brit. Cotton Ind. Research Assoc. 34:* 358 (May 15, 1954).

Laboratory skein-dyeing machine

W. Armfield (Courtaulds Ltd.). *J. Soc. Dyers Colourists 70:* 183-185 (May, 1954).

A convenient laboratory dyeing machine is described for the dyeing of skeins. Dyeings can be carried out in liquor:yarn ratios as low as 10:1 using 5 g. of yarn. Twenty-four dyeings can be done simultaneously at the same temperature, or a maximum of twelve at each of two temperatures. Thermostatic temperature control is employed, together with continuous agitation of the yarn, which is kept completely submerged. The advantages compared with the usual pot dyeing methods are listed.

The light-fastness of dyed nylon fibers

C. T. Speiser. *SVF Fachorgan Textilveredlung 9, No. 2:* 69-71 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 365 (May 15, 1954).

Delustred nylon yarns were dyed with acid, chromium, direct dispersion, vat, and metal-complex dyes, and breaking tests were carried out before and after exposure to light. It was found that the vat-dyed fibers (particularly yellow, red and orange) showed typical weakening when exposed to light. The acid, direct, and dispersion

dyes exhibited neither typical protective nor typical weakening action, whereas the normal chromium and the metallized complex dyes (of the Neolan type) were found to reduce the degree of fiber weakening due to light exposure. This is of particular interest for obtaining highly light- and weather-fast dyeings on nylon. It was not possible to establish a relationship between the constitution of the dyes and their protective action.

Lint doctors

R. Carter. *Textile Ind. 118:* 114-117 (June, 1954).

The function of the lint doctor, its setting and cleaning, lubrication, placement in the machine, feeding-in print paste from faulty lint doctor, trouble with cutting-guides, and chromium plating are discussed.

Piece dyeing by the Acramin-F process

A. Schmitz. *Textil-Praxis (English ed.) No. 1:* 35-40 (March, 1954).

In the Acramin-F process, a water emulsion of synthetic resins and dispersed pigment are padded on piece goods and fixed by drying at temperatures of 176-248°F. Very light shades of good light fastness on fabrics are predicted. Process is applicable to cotton, viscose rayon, woven glass and Everglaze fabrics.

Printing of viscose spun rayon piece goods

H. Jakob. *Z. ges. Textil-Ind. 56, No. 5:* 252-255 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 359 (May 15, 1954).

Dyestuffs used in printing viscose spun rayon are discussed and suitable thickening compositions based on starch, modified starches, rubber thickeners, locust bean gums, alginates, and cellulose derivatives, are described. Recommendations are also made with regard to the printing process, consisting of the printing pastes, and after-treatment of the printed fabric.

Problems of the garment dyer and finisher, including the dyeing of buttons

B. Kramrisch and A. E. Bratt(Clayton Dyestuffs Co. Ltd.). *J. Soc. Dyers Colourists 70:* 173-183 (May, 1954).

The production of printing colors and printing pastes

E. Hacklander. *Textil-Praxis (English ed.) No. 1:* 40-42 (March, 1954).

Some advantages to be obtained using an emulsifier or colloid mill for preparing printing pastes are production of higher quality pastes, greater ease of production, brighter shades on fabrics, and possible use of discarded color preparations.

Production of screen printing stencils

R. Kunzl. *Textil-Praxis (English ed.) No. 1:* 43-47 (March, 1954).

Screen printing stencils are produced by cutting required designs into wax or lacquer coated paper and transferring the wax or lacquer to the mesh screen using solvents. Details for producing large and small stencils are given.

Synthetic resin dyeing equipment

Gewerkschaft Kerachemie, Germany. *Skinner's Silk and Rayon Record 28:* 595 (June, 1954).

A new type of winch dyeing machine has been developed in Germany which should be particularly interesting for the cuprous ion technique. All the main parts that come into contact with the liquor are fabricated in Kera synthetic resin. The machine is described.

Treatment of acid dyes with ultrasonics

M. Zilahi. *Magyar Textiltechnika No. 1:* 8-12 (1953); *in Hungarian.* Through *Brit. Cotton Ind. Research Assoc. 34:* 357 (May 15, 1954).

Assuming that irregularity in dyeings is due to the large particle size of the dye and knowing that colloidal suspensions are favorably affected by ultrasonic treatment, the author carried out experiments with wool dyes (Fast Yellow 2G, Fast Red RS and Fast Blue R). Experimental results are discussed in the original paper and it is concluded that the irregularity is not due to the excessive particle size of the dye, but to the great affinity of the dye for wool. Ultrasonic treatment at 800 kHz frequency increases the dispersity of the dye solutions and changes the color of aqueous azo dye solutions.

Uneven selvages in piece-dyed fabrics

W. Silken. *Textil-Praxis (English ed.) No. 1:* 32-35 (March, 1954).

Causes of uneven dyeing in body of woolen fabrics as well as on selvages are given. Points where faults are caused in processes from opening up to dyeing of fabrics are indicated.

The use of colorimetry in the manufacture and utilization of dyestuffs

F. Braun. *Rayonne et Fibres Synthet. 9, No. 10:* 25-32; *No. 11:* 39-45 (1953); *10, No. 1:* 53-60; *No. 2:* 45-51 (1954); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 359 (May 15, 1954).

In this series of articles, the author describes simple means for determining dyeing formulations so as to obtain any desired shade directly by mixing selected basic colors.

DRY PROCESSES D 3

Drying in the textile industry and installations

P. Fischer. *Textil- u. Faserstofftech. 4, No. 2:* 98-101 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 361 (May 15, 1954).

Various drying processes are briefly reviewed and an automatic continuous fabric drier is described and illustrated by a flow sheet. Reference is also made to the possibility of "flat-drying" in the drier instead of hanging the goods up; this is of advantage, particularly in drying crepe material.

Tests on the effect of raising on fabric strength

R. Steidl. *SVF Fachorgan Textilveredlung 9, No. 2:* 61-66 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 360 (May 15, 1954).

In continuation of a previous article the author describes a new test to show the effect of the raising rollers on the tensile strength of plain-woven cotton fabric in the weft direction. The three samples examined were treated under the same conditions, varying only the number of strokes and counter-strokes of the raising rollers. They were then bleached, dyed and finished, and raising was completed under identical conditions for all three samples. The results are tabulated and interpreted.

GENERAL D 4

Finishing losses and their causes

K. Piesker. *Textil- u. Faserstofftech. 4, No. 2:* 96-98 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 356 (May 15, 1954).

"Finishing loss" is defined by the difference in weight of the raw material and that of the finished product, caused by (a) the removal of impurities from the raw material (scouring loss), (b) loss of fibers during milling, raising and warping, and (c) moisture content of the finished product. Losses due to scouring and warping are unavoidable; the loss due to milling can be reduced by adjusting the time of milling, number of revolutions in the machine, type and amount of the milling agent, milling methods and amount of moisture. Losses due to raising and to moisture content in the finished product can also be reduced by suitable adjustments.

Hot water storage heaters increase efficiency of finishing operations

F. A. Westbrook. *Textile Age 18:* 28-29 (June, 1954).

Practical experience with hot water storage heaters is briefly described.

New type of needle-find-motion

B. Bonekamp. *Textil-Praxis (English ed.) No. 1:* 16-19 (March, 1954).

An appliance for finding needles and similar objects in fabrics and for stopping fabric movement before damage to machines can occur is described. Its efficiency in finding metal at various speeds is not mentioned.

TESTING AND MEASUREMENT E

FIBERS E 1

Analyzing fiber lengths

A. Kershaw and Sons, Leeds, England. *Skinner's Silk and Rayon Record 28:* 590 (June, 1954).

This new semi-automatic fiber length measuring machine for synthetic or natural fibers will be particularly useful for measuring synthetic fibers when an accurate determination of fiber length distribution is required to detect fiber breakage in spinning. The operation of the machine is described.

Fine structure in polyethylene terephthalate fibers

A. Cobbold, R. de P. Daubeny, K. Deutsch and P. Markey. *Nature 172:* 806 (1953). Through *J. Appl. Chem. 4:* 479 (April, 1954).

A technique for exposing the internal fine structure of drawn monofilaments is given. The filament is opened down its length and replicas made using the evaporation technique with Ge as replicating medium. The electron microscope shows the fibrillar character of the fiber.

Fractionation of synthetic fibers

A. Gordijenko. *Faserforsch. u. Textiltech.* 499-507 (December, 1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 289 (April 15, 1954).

In order to study the accurate composition (distribution of the polymer homologues) of individual high-molecular compounds, an attempt was made to break up the mixtures into single

fractions of almost equal chain length. The methods of fractionation were based on differences in solubility, adsorption, rate of sedimentation, and behavior during electrophoresis. Methods for the fractionation of Perlon, Orlon, and Terylene fibers are reviewed (23 literature references) and results, presented by graphs, are discussed. The methods are useful for identification purposes of various types of synthetic fibers having the same viscosity, and for studying the relationship between the distribution of the polymer homologues in the polymers and the textile properties of the finished products.

Identification of textile and related fibers

J. E. Ford and W. J. Roff. *Shirley Inst. Mem. 27:* 77-108 (March, 1954).

Fiber identification is discussed and a simple system of analysis is presented. Separation into natural or man-made fibers is first effected with the aid of the microscope; natural fibers are then separated (largely by morphological distinctions) into six characteristic groups, in each of which individual types are identified by chemical or morphological tests; man-made fibers are also separated (by thermoplasticity, and the presence of chlorine or nitrogen) into six groups, in which individual types are identified largely by chemical distinctions. Features of the system are the small number of steps required to identify any fiber and the provision of confirmatory tests. Almost all the textile and related fibers likely to be encountered at the present time have been considered, including some forty fibers from natural sources and thirty made by man. Sixty-four photomicrographs of fibers are also included.

Improved strain gage for precise force measurement in single fibers

W. J. Thorsen (Western Regional Research Laboratory). *Textile Research J. 24:* 407-413 (May, 1954).

An unbonded resistance wire strain gage is described that is sensitive to small forces, has high precision and accuracy, and is simple to construct. The low inertia and high stability of this gage make it especially suitable for the precise measurement of stress relaxation in single textile fibers over periods lasting from milliseconds to as long as 2 months or more. The output of the gage is sufficient for direct coupling to recording potentiometers. 15 references.

Refractive indexes of textile fibers

W. R. Moore. *Textile Recorder 72:* 81-84 (May, 1954).

Refractive indexes of textile fibers are discussed in relation to their value in the study of fiber structures and as an aid to fiber identification. 11 references.

The solubility of plastics and synthetic fibers as a means of identification and damage prevention

M. L. Bumiller. *Farber-Ztg. 7, No. 2:* 25-27 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 333 (April 30, 1954).

Of the various characteristics and reactions which can serve in identification and differentiation of chemical fibers and plastics, the different solubility behavior of the individual types of fibers forms the basis of the most rapid identification test which can be carried out in a test tube. A table is given to show the solubilities of polyamide, polyvinyl chloride, vinyl chloride/vinylidene chloride copolymerizate, vinyl chloride/acrylonitrile copolymerizate, polyacrylonitrile, polyester, cellulose acetate and polyethylene fibers in thirty-one solvents. The data are based on literature reports and on the author's own experiments.

A test for detecting the effects of micro-organisms and of a microbial enzyme on cotton fiber

P. B. Marsh. *Plant Dis. Reptr. 37, No. 2:* 71-76 (1953). Through *Rev. Appl. Mycol. 32, Part 9:* 495 (1953).

A new method for measuring the effect of micro-organisms and other deteriorative agents on cotton fiber consists in swelling a known weight of fiber in sodium hydroxide solution, centrifuging off the interfibrillar liquid, and determining the percentage weight increase or "alkali-centrifuge" value which rises with any damage to the fiber walls. When strips of cotton fabric were dusted with *Cladosporium* spores and incubated, this value increased materially even though the strength of the fabric remained unchanged. Filtrates from cultures of *Myrothecium verrucaria* increased the "alkali-centrifuge value" only when the culture medium contained some form of cellulose, the principal active factor probably being cellulase or some element of the cellulase complex.

YARNS E 2

Changes in elongation properties owing to the occurrence of yarn tension

H. Stein. *Textil-Praxis 9:* 131-133 (February, 1954); *in German.* Through *Brit. Cotton Ind.*

Research Assoc. 34: 334 (April 30, 1954).

Various testing devices are briefly described and the relationship between the measured values obtained and practical observations is pointed out.

Graph for the calculation of twists in cotton thrums and yarns

C. Pujol-Isern. *Industrie Textile:* 9-12 (January, 1954); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 334 (April 30, 1954).

Equations, on which the construction of the graph is based, are given and twist values are calculated for American and Egyptian cottons.

Optical recording of yarn tension during weft winding

P. Aleshin. *Tekstil. Prom. No. 1:* 32-33 (1954); *in Russian.* Through *Brit. Cotton Ind. Research Assoc. 34:* 317 (April 30, 1954).

The apparatus developed for this purpose consists of a vertical base with a bracket fixed to it, on which lies a small steel beam supported separately and provided with a mirror. One end of the beam is fixed by means of a shaft in bearings, the other is placed freely between two bars. In order to reduce friction, the bearings are made of a special material. A glass eyelet, through which the yarn is threaded and which guides the thread, is fixed to the center of the beam. The apparatus is provided with a light source and camera and the yarn tension is recorded graphically during the winding process. It was found that the changes in yarn tension, when winding on conical surfaces, are expressed in the form of a sine curve; a linear curve, however, is obtained when the yarn is wound on cylindrical surfaces. Any yarn irregularities (nodes, loops, lumps, etc.) affecting the tension are seen on the diagram in the form of sharp peaks with large oscillation range.

Measurement of non-uniformity of cross-section of fibers, threads, and yarns by means of the high-frequency condenser field

H. Locher. *Schweiz. Arch. angew. Wiss. Tech. 19:* 224-232 (July, 1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 335 (April 30, 1954).

The measurement is performed by passing the material between electrodes so that it forms part of the dielectric of a capacitor which is the tuning element of an oscillator. The output of this oscillator is mixed with that of another having a fixed frequency. When no material is present, the two oscillators have the same frequency. Passage of material between the electrodes gives rise to a difference frequency which is modulated by variations in the cross-section. A discriminator and amplifier feed a meter and a pen recorder. The measurement is made practically independent of moisture content by restricting the material space factor (percentage of textile material to volume of capacitor field) to about 10 per cent. The effect of electrode length on the ability of the instrument to follow rapid changes of dimension, and the accuracy requirements, are discussed. A perforated endless film is used for calibration. Methods of interpreting the recordings, and an RC-integrator by means of which short-term variations may be separated from the mean deviation, are described.

Testing apparatus and methods for determining yarn irregularities. Part 2

W. Wegener and W. Zahn. *Textil-Praxis 9:* 134-141 (February, 1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 334 (April 30, 1954).

Methods and corresponding apparatus are reviewed for measuring changes in (1) thickness (cross section) and volume (visual, optical, mechanical scanning and pneumatic methods), (2) tensile strength and elongation at break, (3) elongation at constant load, and (4) tensile strength at constant elongation. Diagrams obtained by the various testers are compared and sixty literature references quoted.

Electronic fluff-detector for continuous filament yarn

B. J. van Dongeren. *Enka Breda Rayon Revue 8:* 24-29 (April, 1954); *in Dutch.*

The electronic fluff-detector described in this article can be used for determining the quality of continuous filament yarns. Thread-speeds to 600 m/min. can be applied. Fluffs can be counted and, if necessary, cut out for further investigation.

How to predict the strength of plied cotton yarns

J. Duerst (Coats and Clark, Inc.). *Textile World 104:* 118-119 (June, 1954).

By the use of the formula described in this paper, the strength of a plied cotton yarn, SZ or ZS twist, can be determined without the strength of the component yarns being known.

A new method for checking and calibrating the Scott inclined plane tester

J. W. Y. Heijnis. *Enka Breda Rayon Rev. 8:* 41-53 (May, 1954); *in Dutch.*

For calibrating the Scott I. P.-testers a dynamic

method has been designed in which all mechanical factors playing a part in the strength-indication of the yarn are concerned. During calibrating, a stress-strain diagram is made of a calibrating spring, the stress-strain ratio of which is known through the factor $\triangle 1_c$. Deviations of the diagram with respect to factor $\triangle 1_c$ can be easily determined. Three errors are found, which together cause the total error T. With the aid of this method it is possible to limit the error T for all I. P.-testers to misreadings ranging from $+0.5\%$ to -0.0%.

FABRICS E 3

The bubble pressure test for the measurement of the pore size of fabrics. Part 1. The development of the test

I. Lord and H. M. Taylor (Brit. Cotton Ind. Research Assoc.). *J. Textile Inst. 45:* T371-T379 (May, 1954).

Previously published in *Shirley Institute Memoirs 27:* 1-9 (January, 1954). See *TTD 11:* 165 (April, 1954).

The bubble pressure test for the measurement of the pore size of fabrics. Part 2. The application of the bubble pressure test to a study of the sealing of close cotton cloths when wetted

J. Lord (Brit. Cotton Ind. Research Assoc.). *J. Textile Inst. 45:* T380-T389 (May, 1954).

Previously published in *Shirley Institute Memoirs 27:* 10-19 (January, 1954). See *TTD 11:* 166 (April, 1954).

Dissection of warp-knit fabrics

B. Norwick (Beaunit Mills Inc.). *(Letter to the Editor). J. Textile Inst. 45:* P218-P220 (May, 1954).

Dissection system for locknit and other warp knit fabrics. 6 photographs. 13 references.

Shrinkage and intersecting angle of plain cotton and rayon staple fabrics

Y. Miura and T. Kikuchi. *J. Soc. Textile Cellulose Ind. Japan 9, No. 9:* 465-469 (1953); *in Japanese (English summary).* Through *Brit. Cotton Ind. Research Assoc. 34:* 368 (May 15, 1954).

Equations for calculating the required shrinkage of plain cotton and rayon staple fabrics are worked out, by taking into account (1) the yarn thickness determined from the yarn count and specific gravity of the fibers, and (2) the thickness of the cloth determined by the sum of warp- and weft-yarn thicknesses.

Shrinkage in laundering of cotton and rayon fabrics

AATCC Research Committee on Dimensional Changes. *Am. Dyestuff Reptr. 43:* P364-P367 (June 7, 1954).

This report summarizes the results obtained in an exhaustive series of interlaboratory tests which were made on 16 unshrunk and shrunk woven cotton and rayon fabrics by eight laboratory washing methods. The report also includes comparisons of the shrinkage of the same fabrics when washed in a representative type of automatic home washing machine and also a rotary washer in a commercial laundry. The results answer questions which are frequently raised with reference to differences in laboratory testing techniques and the correlation of such laboratory shrinkage methods with home and commercial practice.

GENERAL B 5

Comparative tests for textile assistants

W. Otto. *Z. ges. Textil-Ind. 56, No. 5:* 242-244 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 356 (May 15, 1954).

The most frequently used testing methods, some of which have already been published as standard methods, are summarized; they comprise methods for testing the surface activity and wetting power of textile assistants in water, kier, dye, carbonizing, and bleaching baths, their levelling power and detergent action.

Conformity limits in specifications

H. P. Stout. *J. Textile Inst. 45:* S6-S17 (April, 1954).

Development of a simplified system for assurance of meeting tolerances, based upon control of averages and variabilities of product in a vendor-consumer relationship. Ready-made tables show the limits for percentage of product outside specifications if the distribution of individual items is normal, as well as the number of tests required to assure no more than a given sampling error for various variation coefficients. Examples of actual conformity limit calculations are given, utilizing yarn counts, weight of packages of knitting wool, and fabric thickness.

Measurements of the humidity of the air. Part 3. Psychrometers

C. G. Booy. *Enka Breda Rayon Revue 8:* 11-23 (April, 1954); *in Dutch.*

The series of articles on measurements of the humidity of air is concluded with a discussion

of the psychrometers. After dealing with the requirements these instruments must meet, the author mentions the directions for use and maintenance which should be followed to ensure a good result from the measurements. 10 references.

Microscope and the cotton mill or finishing plant

I. V. deGruy and M. L. Rollins (Southern Regional Research Laboratory). *Textile Ind. 118:* 144-153 (June, 1954).

A general survey of the uses of the microscope throughout processing and finishing. 14 photomicrographs are presented.

Volumetric leg form

E. L. Lauber. *Textile Ind. 118:* 104-105 (June, 1954).

A form for use in testing stockings that will simultaneously measure and record the stretch of a stocking in the five critical areas of welt, knee, ankle, instep, and foot. It will be leased by the National Association of Hosiery Manufacturers.

INDUSTRIAL ENGINEERING F

MACHINERY AND MAINTENANCE F 1

Boiler house instrumentation. Part 3

F. H. Slade. *Textile Mfr. 80:* 223-228,268 (May, 1954).

Electrification in a bleach and dyeing works

S. McCracken. *Textile Mfr. 80:* 239-242 (May, 1954).

The conversion of a bleach and dyeing works from engine-driven line-shafting to individual electric drive is described.

Maintenance system

R. B. Pressley. *Textile World 104:* 73-75, 186-190 (June, 1954).

Improving machinery and equipment instead of repairing it is the main work of the maintenance department at Calhoun Mills. Some of the results are as follows: (1) cotton unloads from railway boxcars in a continuous cycle, (2) automatic picker-lap weighing amounts to mechanical supervision, and (3) mercury switches and electronic controls reduce cloth-room-machinery downtime.

Steel-concrete-shell-construction for buildings of the textile industry

R. Horn. *Textil-Praxis (English ed.) No. 1:* 4-8 (March, 1954).

Low maintenance, fire resistance, and cheapness of original construction costs are given as advantages of shell roof construction. Types of structures built are shown. No figures for cost comparison with buildings of standard construction are given.

Windowless building and its advantage

H. Laakso. *Textil-Praxis (English ed.) No. 3:* 139-143 (September, 1953).

Heat, water, and electric current requirements of an air-conditioned windowless textile plant are considered along with its psychological effect on the workers. A table compares data on air conditioned plants of different building construction.

PRODUCTION F 2

Setting up a blended synthetic yarn manufacturing unit

S. L. Fuller (Barnes Textile Associates, Inc.). *Textile Age 18:* 34-36 (June, 1954).

An engineering approach to the planning and development of a blended synthetic yarn producing plant. The ideas advanced are centered around normal established procedures which have been found to be usable.

Services

Plant Location Studies
Investigation of Sites
Plant Layouts
Design of Buildings and Services
Design of Power and Steam Plants
Supervision of Construction
Economic Studies and Reports
Appraisals

LOCKWOOD GREENE

Engineers · *Architects*

Boston 9, Mass.
40 Central Street

New York 20, N.Y.
10 Rockefeller Plaza

Spartanburg, S.C.
Montgomery Building

OVER 120 YEARS OF SERVICE
IN TEXTILES

QUALITY AND WASTE F 3

Industrial specifications

E. H. MacNiece. N. Y., John Wiley and Sons Inc., 1953. 158 p. $4.50.

A discussion of specifications as an important part of statistical quality control and product developments. Chapters deal with unit tolerances and lot tolerances, consumer-vendor relations, company, national and universal standards, and special situations, as in textiles, electronics, and other products.

GENERAL F 4

Process water treatment for the textile plant

E. Nordell (Permutit Co.). *Textile Age 18:* 10-16 (June, 1954).

Surface waters are subject to sudden changes of composition while a ground water usually remains fairly constant in composition even over long periods of time. Tables show the maximum and minimum turbidities and hardnesses of a group of 12 rivers over a one year period, the maximum and minimum colors in a group of 8 rivers, 2 creeks, a canal and a lake over a one year period, and the relatively constant composition of a deep well water over a 33 year period. Classification of surface waters, coagulation of waters, the floc-former, removal of iron and manganese, water softening, combination lime zeolite process, and demineralization by ion exchange are considered.

Mixing: the universal operation

C. S. Quillen. *Chem. Eng. 61:* 177-224 (June, 1954).

Every process industry uses mixing—most of them at several different points. But mixing is still very much of an art, based largely on accumulated experience. The author boils down a vast amount of that experience to produce a comprehensive mixing report. This unit operations report is in six parts; (1) mixing (introduction), (2) liquid mixing, (3) paste mixing, (4) plastics mixing, (5) solids mixing, and (6) continuous mixing. Reprints are available at 75 cents each.

Break-even graph

W. A. Schuette (Allis-Chalmers Mfg. Co.). *Consulting Engr. 3:* 44-47 (May, 1954).

Elementary discussion of the break-even graph in evaluating the point where utilization of equipment, production or related activity reaches the point where total income exceeds total fixed cost plus variable cost and true revenue is achieved. The role of the consulting engineer in assisting plant management in developing break-even points is stressed.

SCIENCES G

CHEMISTRY G 1

Annual review of literature on fats, oils, and soaps. Part 2

M. M. Piskur (Swift and Co.). *J. Am. Oil Chemists Soc. 31:* 236-253 (June, 1954).

See *TTD 11:* 214 (May, 1954).

Cellulose chemistry and the textile industry

D. A. Clibbens. *J. Textile Inst. 45:* P173-P193 (May, 1954).

This Mather lecture is a survey of research work carried out at the Shirley Institute for more than thirty years on the chemistry of the modified cotton celluloses. 57 references.

Relation of molecular structure to detergency of some alkylbenzene sulfonates

F. N. Baumgartner. *Ind. Eng. Chem. 46:* 1349-1352 (June, 1954).

For an isomeric series of sodium sulfonates of dodecylbenzene in which the alkyl group consists of a straight chain, detersive power reaches a maximum when the benzene ring is located on the third alkyl carbon atom. The effects of sodium sulfate, water hardness, and temperature have been noted. For a homologous series optimum detersive power occurs when the linear alkyl chain contains 11 to 12 carbon atoms. In contrast to detersive ability, the wetting power and the ability to lower surface tension increase as the benzene ring is located nearer the center of the alkyl chain. No direct correlation between measurements of these surface phenomena and detergency measurements was observed. 6 references.

A study for infra-red spectroscopy of hydrogen bonding in cellulose

H. J. Marrinan and J. Mann (British Rayon Research Association). *J. Appl. Chem. 4:* 204-211 (April, 1954).

The interaction between cellulose and heavy water allows absorptions due to stretching of OH groups in crystalline and amorphous regions to be studied independently. Crystalline regions give several absorption bands in the 3600-3000 cm. range and it is shown that all the bands are due to stretching of OH groups. Arguments are presented that support the idea that these bands can be interpreted in terms of vibrations of individual groups. It is shown that all the OH groups in crystalline regions of regenerated and bacterial

celluloses are hydrogen-bonded, and that crystal structures suggested by Peirce for these celluloses are incorrect. Suggestions are made about the types of hydrogen bond present in regenerated cellulose. The relationship between infra-red absorption frequencies and O.....O distances in crystals is discussed. It is concluded that no reliable estimate of O.....O distances in cellulose can be made from absorption frequencies on the basis of results available at present. 28 references.

PHYSICS G 2

Antistatic finishes for textiles

M. Hayek (E. I. du Pont de Nemours and Co. Inc.). *Am. Dyestuff Reptr. 43:* P368-P371 (June 7, 1954).

The fundamentals of static electricity on textiles are reviewed, and the mechanisms of antistatic action are described. To be generally effective, antistatic agents must reduce the electrical resistance of textile surfaces. The manner in which the electrical resistances of fibers are decreased by various compounds, particularly the commonly used antistatic agents, is discussed. The requirements and properties of antistatic finishes needed for the manufacture of fibers and fabrics and for the treatment of consumer articles are discussed. 36 references.

Cellulose acetate, an ideal insulator

R. Grignard. *Rayonne et Fibres Synthet. 10, No. 2:* 53-56 (1954); *in French.* Through *Brit. Cotton Ind. Research Assoc. 34:* 366 (May 15, 1954).

Experiments carried out under accurately defined atmospheric conditions made it possible to calculate the electrical resistance of textiles and to study the various factors affecting it, for example, humidity and heat. It was found that the high electrical resistance of cellulose acetate is very little affected by atmospheric conditions; this makes the fibers suitable for use as insulating material to replace the more expensive and less resistant silk. Abrasion resistance of cellulose acetate can be increased by heat or inert solvent treatment.

Flow through textile filter media

G. E. Cunningham, G. Broughton and R. R. Kraybill. *Ind. Eng. Chem. 46:* 1196-1200 (June, 1954).

Over a period of years data on resistance to fluid flow of a variety of fabrics and filter media have been accumulated using a modified form of the National Bureau of Standards apparatus for measuring resistance through fabrics. These data are presented, a tentative correlation is suggested, and several anomalies are pointed out. 12 references.

BIOLOGY G 3

Mildew control. Possibilities of paradichlorobenzene as an aid in preventing damage by mildew

R. S. Shumard. *Soap 29, No. 3:* 150-151,153, 171-173 (1953). Through *Brit. Cotton Ind. Research Assoc. 34:* 370 (May 15, 1954).

Experiments are reported demonstrating the efficiency of paradichlorobenzene in the control of mildew on shoes, samples of 8-oz. canvas duck and white wool cloth, and a book, all inoculated with spore suspensions of *Aspergillus niger, A. ustus, Penicillium* sp., *Chaetomium globosum,* and *Myrothecium verrucaria.*

MISCELLANY H

Second cotton chemical finishing conference, 1953

National Cotton Council of America. Wash., 1954. 70 p. Copies available from National Cotton Council, Utilization Research Division, 1832 M Street, N. W., Washington 6, D. C.

The following conference papers are printed in full: Cotton as a basis for new textile fibers, by Charles F. Goldthwait (Southern Regional Research Laboratory); Resistance to microbiological degradation of resin treated cotton fabrics, by Theodore F. Cooke (American Cyanamid Company); Ultra-violet screening properties of certain pigment-vehicle combinations, by Lawrence L. Heffner (Wm. E. Hooper and Sons Company); Nitrile rubber latices as permanent abrasion resistant finishes for blue denim fabric, by Edward Abrams (Southern Research Institute); Electron microscope observations of the cotton fiber primary wall, by Mary Rollins (Southern Regional Research Laboratory); A progress report on the mercerization of cotton without tension, by Henry A. Rutherford (North Carolina State College); Cyanoethylation of cotton, by Jack Compton (Institute of Textile Technology); The Barotor—a possible tool for chemical finishing, by Raymond J. Andres (E. I. du Pont de Nemours and Company); Some aspects of resilient stiffness, by Albert C. Nuessle (Rohm and Haas Company); and Flameproofing cotton with THPC-resins: a progress report, by Wilson Reeves (Southern Regional Research Laboratory).

The educational system of Great Britain in relation to the study of textile technology

D. B. Moore. *J. Textile Inst. 45:* P194-P205 (May, 1954).

The relationship and contributions of industry to textile education are of particular interest.

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

YARNS B

OPENING AND PICKING B 1

Feed apparatus for textile fiber opening and like machines

Z. Szaloki and W. J. Senior (T.M.M. Research Ltd.). BP 697 818, September 30, 1953.

CARDING AND COMBING B 2

Combing machine for textile fibers

C. Schleifer (Italy). USP 2 680 885, June 15, 1954.

DRAWING AND ROVING B 3

Producing staple fiber yarn by passing a sliver through a drafting zone having a ratch less than the minimum staple fiber length

H. E. New (to American Viscose Corp.). USP 2 679 072, May 25, 1954.

Sliver condensing

J. G. Kershaw (Canada). USP 2 680 266, June 8, 1954.

Slub catcher

M. Asti and L. Anterni (to Falls Yarn Mills). USP 2 679 087, May 25, 1954.

Stop motion device for yarn processing machines

W. J. Scott. USP 2 679 073, May 25, 1954.

SPINNING, WINDING, TWISTING B 4

Cop winding machine

H. L. Muschamp and J. R. Grady (England). USP 2 681 183, June 15, 1954.

Device for obtaining an upward lubricant circulation in spinning spindles

L. Birkigt (to Society Hispano-Suiza, Switzerland). USP 2 680 495, June 8, 1954.

Self-threading yarn tension device

F. F. Stange (to Foster Machine Co.). USP 2 680 572, June 8, 1954.

Spinning spindle

T. W. Morrison and H. Styri (to SKF Industries Inc.). USP 2 680 659, June 8, 1954.

Two-piece bobbin

W. H. Miller (to Cloverleaf-Freeland Corp.). USP 2 681 188, June 15, 1954.

GENERAL B 5

Apparatus for converting elongated filaments into a sliver of staple fibers

H. G. Hood (to R. H. Hood Co.). USP 2 679 070, May 25, 1954.

Bobbin

R. A. Morgan (to Spaulding Fibre Co., Inc.). USP 2 679 988, June 1, 1954.

Spool holding device

A. A. Huber (to Industrial Rayon Corp.). USP 2 681 189, June 15, 1954.

Textile bobbin and method of forming same

C. K. Dunlap (to Sonoco Products Co.). USP 2 679 989, June 1, 1954.

FABRICS C

WARPING, SLASHING, YARN PREPARATION C 1

Apparatus for treating warp sheets and the like to size and dry them

J. R. Andrews, Jr. (to Bachmann Uxbridge Worsted Corp.). USP 2 679 086, May 25, 1954.

Textile beamer or warper

H. W. Groce and G. H. Browne (to Cocker Machine and Foundry Co.). USP 2 680 896, June 15, 1954.

Unwinding and releasing means for the warp beam of weaving looms

J. Picanol (Belgium). USP 2 681 080, June 15, 1954.

Warping

G. White (to Courtaulds Ltd., England). USP 2 680 280, June 8, 1954.

Warp tying machine

M. Bar (to Knotex Maschinenbau G.m.b.H., Germany). USP 2 679 676, June 1, 1954.

WEAVING C 2

Arrangement of the delivery of the warp threads to circular weaving looms

J. Dunod (to Qualitex-Societe Dunod and Cie, France). USP 2 679 264, May 25, 1954.

Driving means for heddle frames in weaving looms

J. Picanol (Belgium). USP 2 681 078, June 15, 1954.

Fabric let-back means for looms

A. A. Laferte (to Draper Corp.). USP 2 679 268, May 25, 1954.

Multicolor weft replenishing loom

A. J. Herard, Jr. and R. C. Turner (to Crompton & Knowles Loom Works). USP 2 679 267, May 25, 1954.

Picker stick for looms

A. L. Scott (to Columbia Products Co.). USP 2 681 081, June 15, 1954.

Pile cutting mechanism

R. Adamson. USP 2 679 265, May 25, 1954.

Return movement device for weaving loom heddle frames

J. Picanol (Belgium). USP 2 681 079, June 15, 1954.

Thread holder having geared members for the weft ends of a weft replenishing loom

R. A. Desrosiers. USP 2 681 082, June 15, 1954.

Warp tension equalizer for power looms

C. Dill (to Dill Loom Adapters, Inc.). USP 2 679 266, May 25, 1954.

KNITTING C 3

Carrier ring fastening device

E. St. Pierre (to Hemphill Co.). USP 2 680 361, June 8, 1954.

Flat bed full-fashioned knitting machine

R. J. Good (to Fred C. Good and Sons, Inc.). USP 2 680 363, June 8, 1954.

Flat full-fashioned type knitting machine

J. Vaclacik (to Svit, Narodni Podnik, Gottwaldov, Czechoslovakia). USP 2 680 362, June 8, 1954.

Pile fabric knitting machine

A. W. Schmidt (to the George W. Borg Corp.). USP 2 680 360, June 8, 1954.

Stocking counting device

F. Autem (to Textile Machine Works). USP 2 679 358, May 25, 1954.

Straight bar knitting machine

K. W. Wickardt and J. Stoekel (to Hosemaster Machine Co. Ltd., England). USP 2 680 364, June 8, 1954.

Warp guide construction for warp knitting machines

R. L. Walford. USP 2 680 959, June 15, 1954.

Yarn changing mechanism for circular, independent needle, knitting machine

E. St. Pierre (to Hemphill Co.). USP 2 679 149, May 25, 1954.

GENERAL C 4

Apparatus for distributing textile flock on a web

H. Ewing and J. S. Blackmore (to Celanese Corp. of America). USP 2 681 036, June 15, 1954.

Apparatus for spreading tubular fabric

J. Hamilton (to Proctor and Schwartz, Inc.). USP 2 680 279, June 8, 1954.

Automatic web tension device

E. H. Monkley. USP 2 680 573, June 8, 1954.

Chenille tufting machine

C. M. Jones. USP 2 679 218, May 25, 1954.

Control device for automatic textile winding frames

S. Furst (to Walter Reiners, Germany). USP 2 679 361, May 25, 1954.

Fabric marker device

M. Rossi and A. Di Giorgi. USP 2 681 003, June 15, 1954.

Fabric take-up device and method of maintaining tension on fabric

E. St. Pierre (to Hemphill Co.). USP 2 680 365, June 8, 1954.

Method and apparatus for manufacturing chenille carpets

G. C. Ahier and H. Krull (France). USP 2 680 469, June 8, 1954.

Process for making pile-surfaced material by causing loose cellulose acetate fibers to adhere to an adhesive-coated surface of a travelling web

H. Ewing and J. S. Blackmore (to Celanese Corp. of America). USP 2 681 292, June 15, 1954.

Tufted fabric and method of producing same

C. M. Jones. USP 2 679 221, May 25, 1954.

Wilton-weave pile fabric

E. J. Dacey (to A. and M. Karagheusian, Inc.). USP 2 681 083, June 15, 1954.

FINISHES D

WET PROCESSES D 1

Cellulosic textiles reacted with aldehydes in an azeotropic medium

J. W. Schappel (to American Viscose Corp.). USP 2 679 449, May 25, 1954.

Cyclopropyl quaternary ammonium compounds and process of applying to textiles

J. R. Janes (to Deering Milliken Research Trust). USP 2 680 057, June 1, 1954.

Flameproofing composition of nitrogen-phosphorus compound in combination with organic compound having free hydroxy radicals

M. L. Nielsen and R. W. Arnold (to Monsanto Chemical Co.). USP 2 680 077, June 1, 1954.

Manufacture of desizing agents

E. Schubert (to Schweizerische Ferment A.G., Switzerland). USP 2 681 299, June 15, 1954.

Manufacture of dimensionally stable synthetic textile materials

N. A. Hampson, J. Downing and J. G. N. Drewitt (to British Celanese Ltd.). USP 2 679 450, May 25, 1954.

Method of incorporating polyvinyl compounds in woven belting

British Belting and Asbestos, Ltd. BP 706 403. Summary in *Dyer 111:* 809 (May 28, 1954).

Method of preparing a coating composition containing a water soluble fluorescent dye

H. Grossman. USP 2 681 317, June 15, 1954.

Process for flameproofing textiles with polyphosphonitrilic ester

C. Hamalainen (to United States of America). USP 2 681 295, June 15, 1954.

Safety batching device

A. Newton and E. Bentley (to Imperial Chemical Industries). BP 706 977. Summary in *Dyer 111:* 808 (May 28, 1954).

Siloxane waterproofing compositions of superior permanency

R. H. Bunnell (to Allied Chemical and Dye Corp.). USP 2 679 495, May 25, 1954.

Textile bobbin support

J. Annicq (Belgium). USP 2 679 153, May 25, 1954.

Web coating apparatus

A. W. Pomper and C. J. Waechter (to John Waldron Corp.). USP 2 679 231, May 25, 1954.

GENERAL D 4

Method of treating thermoplastic web

J. W. Meherg and J. M. Ripple (to the Goodyear Tire and Rubber Co.). USP 2 679 088, May 25, 1954.

Ribbon finishing machinery

L. J. Clarke (to Wm. Franklin and Son). BP 707 322. Summary in *Dyer 111:* 807 (May 28, 1954).

Uncurling knitted fabrics

D. M. Yuill (to Wolsey, Ltd.). BP 707 053. Summary in *Dyer 111:* 809 (May 28, 1954).

TESTING AND MEASUREMENT E

FIBERS E 1

Apparatus for testing thickness of material

F. P. Strother (to West Point Mfg. Co.). USP 2 680 299, June 8, 1954.

BOOKS, PAPERS, AND PAMPHLETS

Added to the library during the past month

Col. 277		Col. 278
	BEARINGS	
Morton, H. T.	Anti-friction bearings.	Ann Arbor, Michigan, Morton Bearing Co., 1954. 395 p.
	CHEMISTRY	
Haynes, Williams	American chemical industry. v. 1. Background and beginnings: 1609-1911.	N. Y., Van Nostrand, 1954. 512 p.
Haynes, Williams	American chemical industry. v. 5. Decade of new products: 1930-1939.	N. Y., Van Nostrand, 1954. 622 p.
U. S. National Bureau of Standards.	Polymer degradation mechanisms. (NBS Circular 525)	Wash., 1953. 280 p.
	COTTON CLEANING	
Williams, D. T.	Cleaning of seed cotton: final summary report. (U. S. Dept. Agri. contract no. A-1s-31910).	Columbus, Ohio, Battelle Memorial Institute, 1950. 2 pts.
	ELECTRONICS	
Aeronautical Radio, Inc.	Investigation of electron tube reliability in military applications.	Wash., Jan. 4, 1954. 97 p.
	FABRICS	
	Fabric facts for spring-summer, 1954: definitions of synthetics, finishes, dyes and weaves.	N. Y., Fairchild Pubns, 1954. 81 p.
Lewis, F.	British textiles.	Leigh-on-Sea, England, F. Lewis Publishers, 1951. 20 p. and 63 plates.
	FIBERS	
British Nylon Spinners Ltd.	Nylon technical service manual.	Pontypool, England. Loose-leaf supplements.
Moncrieff, R. W.	Artificial fibres. 2d ed.	N. Y., Wiley, 1954. 455 p.
Rathmann, D. M.	Zein: an annotated bibliography, 1891-1953. (Mellon Institute bibliographic series bulletin no. 7)	Pittsburgh, Mellon Institute, 1954. 118 p.
Robinson, B. B.	Abaca: a cordage fiber. (Agriculture monograph no. 21)	Beltsville, Md., U. S. Bureau of Plant Industry, 1953. 130 p.

REFERENCE BOOKS

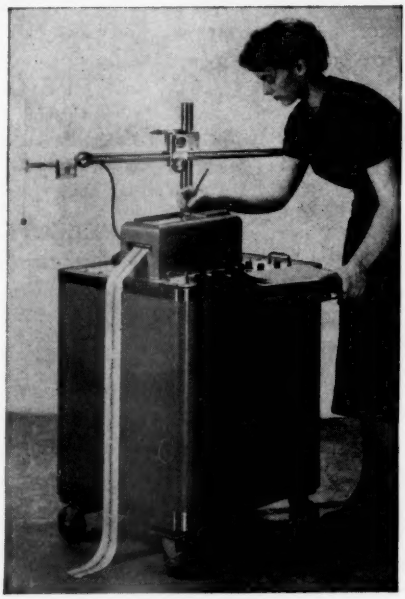
	Blue book of southern progress, 1954.	Baltimore, Manufacturer Record, 1954. 162 p.
U. S. Office of Education.	Education directory. Part 3. Higher education, 1953-54.	Wash., 1953. 183 p.

STATISTICS

Tippett, L. H. C.	Statistical methods for textile technologists.	Didsbury, England, Shirley Institute, n.d. 80 p. (Photostat)

NEW BRUSH TENSION ANALYZER*

MEASURES TENSIONS AT HIGH SPEEDS



● The Brush Tension Analyzer accurately measures and records instantaneous tension loads in filamentary materials—can be used during production of all natural and synthetic textiles as well as fine wire. The Analyzer measures both static tension levels and dynamic tension variations while the material is running at high production speeds. No manual plotting of data is required. For booklet write Brush Electronics Company, Dept.HH-5, 3405 Perkins Avenue, Cleveland 14, Ohio, or Southeastern Textile Instrument Office, 91 Cleveland Street, Greenville, South Carolina.

*Trade-Mark

BRUSH ELECTRONICS COMPANY

INDUSTRIAL AND RESEARCH INSTRUMENTS
PIEZO-ELECTRIC MATERIALS • ACOUSTIC DEVICES
MAGNETIC RECORDING EQUIPMENT
ULTRASONIC EQUIPMENT

BRUSH ELECTRONICS

formerly
The Brush Development Co.
Brush Electronics Company
is an operating unit of
Clevite Corporation.